

REMARKS

INTRODUCTION:

In accordance with the foregoing, claims 1, 4 and 7 have been amended. No new matter is being presented, and approval and entry are respectfully requested.

Claims 1-7 are pending and under consideration.

REASONS FOR ENTRY OF RULE 1.116 AMENDMENT:

The Applicants respectfully request that this Rule 1.116 Amendment be entered. It is respectfully believed that the amendments to the claims and the remarks included herein place this application in condition for allowance. In addition, it is believed that the present amendments to the independent claims clarify the previous claim language in that the claimed light control element diffuses light while the light is within the light control element. The independent claims also recite that the “diffused light passing through said light control element” and previously claimed “generate the diffused light pass through the light control element,” as recited in independent claim 1 for example. It is therefore believed that no new issues are being presented herein, as the independent claims clearly set forth that light was diffused within the claimed light control element.

OBJECTION TO THE DRAWINGS:

The drawings were objected to for failing to illustrate a “display” as previously recited in independent claim 1. Independent claim 1 now particularly recites “to direct light emitted from a light source for display” rather than “to direct light emitted from a light source *towards a display*.” Thus, because independent claim 1 no longer sets forth the feature of a display, it is respectfully submitted that the objection to the drawings is now moot.

Therefore, reconsideration and withdrawal of the outstanding objection to the drawings are respectfully requested.

REJECTION UNDER 35 U.S.C. §103(a):

Claims 1-7 stand rejected under 35 U.S.C. §103(a) as being obvious over Prior Art, as described at pages 1-5 and FIGS. 11-12 of the present application, in view of Gloor et al., U.S. Patent No. 4,298,249, or Ishikawa et al., U.S. Patent No. 5,600,455. These rejections are respectfully traversed.

By way of review and as an example, the invention of independent claim 1 sets forth a light control element including a light entrance side and a light emitting side. The light entrance side includes a prismatic surface with repeated projections and inclined slopes. The light entrance side receives light from a light source. The light control element also includes a light emitting side which emits light that was emitted from the light source and entered the light entrance side. The light emitting side emits diffused light, which is diffused within the

light control element by parts of the slopes included in the light entrance side. Because the light entering the light control element is diffused within the light control element the diffused light illuminates the light emitting side in a substantially uniform manner.

The light control unit is disposed above a reflection sheet, and conventionally a viewer would be able to view the reflection sheet through the light control unit, thus reducing the quality of illumination. By diffusing light within the light control unit, as claimed in the present invention, the light emitted from the light control element will emit light in a wider field of view and prevent a user from viewing a reflection sheet disposed below the light control element. See the present application in FIG. 3.

Prior Art sets forth a surface light source device that emits diffused light. As illustrated in FIG. 11 of the present application, the surface light source device includes a reflection sheet 4, a light source 3, a light guide plate 2, a prism sheet 5, and a light diffusible sheet 6. FIGS. 12-13 illustrate how the light emitted from the light source is emitted out of the light diffusible sheet in a diffused pattern. The light reflecting off the reflection sheet 4 enters the prism sheet and is reflected in parallel directions toward the diffusible sheet 6. The diffusible sheet then diffuses the light to expand the field of view of the surface light source device, which may actually be an LCD display.

As recited in the present application, light that is emanating from the diffusible sheet of Prior Art will inevitably allow a viewer to view the reflection sheet disposed below the light guide plate 2 and provide a narrower field of view.

Gloor et al. sets forth an electro-optical display including a light source 9 and display components in the order of: a reflector 6, polarizer 21, glass plate 3, display medium 7, glass plate 2 and polarizer 20. The viewer sees light emanating from polarizer 20. The surface of the reflector 6 has sloped surfaces to direct light emitted from the light source 9. To increase the field of view, the sloped surfaces of reflector 6 may be provided with slightly diffusely reflecting surface strips or a diffusing layer may be placed between the reflector and polarizer 21. See Gloor et al. at col. 3, lines 31-45; and FIGS. 2-4.

Gloor et al. does not disclose diffusing light *within* either the reflector or a diffusing plate disposed before polarizer 21.

9 (Ishikawa et al. sets forth a transparent member for use in a back light of a liquid crystal display unit. The transparent member is disposed before the liquid crystal display panel 4 and after a diffusion layer 7, which is positioned on top of the light source. The diffusion layer 7 and the light source encompass the light source device 3. As light is emitted from the light source device 3, the light is radiating in many directions. A first transparent member, which includes prism-like portions, is positioned above the light source device to redirect light that was scattered away from the liquid crystal display by the diffusion layer of the light source device 3. A second transparent device is positioned in a perpendicular orientation to further redirect diffused light that is scattered away from the liquid crystal display in a perpendicular direction to the previously redirected light emitted from the first transparent member. See Ishikawa et al. in FIG. 10.


The transparent members include diffusive properties to reduce potential stripe patterns, like Moire patterns. See Ishikawa et al. at col. 3, lines 30-41. The light becomes diffused after exiting the transparent members.

The present invention of independent claim 1 is different from Prior Art, Gloor et al. and Ishikawa et al. because it includes at least the feature of “wherein at least part of said slopes define a light diffusible surface to generate the diffused light *while the light emitted from the light source is radiating within the light control element.*”

The Office Action recites that Prior Art fails to “disclose that at least part of the slopes of the prismatic surface of the light control plate defines a diffusing surface for the purpose of generating diffused light passing through the light control plate towards the emitting surface of the light control plate.” The Office Action thereafter recites that both Gloor et al. and Ishikawa et al. disclose having a surface which defines a diffusing surface. And therefore, the Office Action recites that the cited references when combined with Prior Art would disclose forming diffusing elements/layers on one side or only one slope of each prismatic surface of Prior Art. It is respectfully submitted that Prior Art, Gloor et al. and Ishikawa et al., as stated above, fail to disclose or suggest the claimed diffusing of light radiating *within the light control element*. Further, it is respectfully submitted that there would not have been motivation to combine either Gloor et al. or Ishikawa et al. with Prior Art.

The present invention of independent claim 1 sets forth having a diffusing layer on at least one side of a slope in a light control element. Prior Art fails to disclose this feature, as well as failing to disclose diffusing within the light control element.

Gloor et al. sets forth a reflector having slopes, the slopes including diffusing elements. However, Gloor et al. fails to disclose diffusing *within* any type of medium. The light emanating from the light source is only reflected off the reflector in a diffuse pattern. The light does not enter the reflector.

Ishikawa et al. sets forth a prismatic member including diffusing elements on slopes of the prismatic member. The diffusing elements, however, produce diffuse light after the light exits the prismatic member and, thus, fails to diffuse light *within* the prismatic member. 


In addition to the references failing to disclose diffusing within the claimed light control element, there would not have been motivation to combine Gloor et al. or Ishikawa et al. with Prior Art to disclose at least the claimed slopes including a light diffusible surface to generate a diffused light while light is radiating within the light control element to illuminate the surface of the light emitting side in a substantially uniform manner.

Gloor et al. sets forth positioning diffusing elements on slopes of a reflector. Therefore, the field of view is widened and the viewer is prevented from seeing the reflector. However, this arrangement is very similar to the prism sheet 5 and light diffusible sheet 6 arrangement set forth as Prior Art in the present application. The sloped surfaces of reflector

6 of Gloor et al. redirect the light from the light source in a similar manner as the prism sheet 5 of Prior Art. And the diffusing elements of reflector 6 of Gloor et al. diffuse light after it is redirected in a similar manner as the light diffusible sheet 6 of Prior Art. Therefore, Gloor et al. does not teach Prior Art to diffuse light within the claimed light control element. Gloor et al. only reaffirms that after the light is redirected the light should be diffused. This is not what is claimed for the present invention.

Ishikawa et al. sets forth placing transparent members after the diffusing layer of a light source unit to redirect light towards a liquid crystal display. The diffusing layer 7 of Ishikawa et al. is very similar to the light diffusible sheet 6 of Prior Art. Ishikawa et al. teaches to add two additional transparent members after the diffusing layer 7. Therefore, Ishikawa et al. would only teach Prior Art to further include two additional transparent members after the light diffusible sheet 6. Thus, there would not have been any motivation to combine the two additional transparent members of Ishikawa et al. with Prior Art to modify the prism sheet 5 of Prior Art to include diffusible surfaces or diffusing light within the prism sheet 5 of Prior Art.

In addition, the Office Action has recited that both Gloor et al. and Ishikawa et al. are only being used to disclose sloped surfaces with diffusing elements. It is respectfully submitted that it would have been impermissible hindsight to now modify Prior Art to include diffusing surfaces in the arrangement as presently claimed. Both Gloor et al. and Ishikawa et al. set forth a similar physical arrangement of the diffusing layer as set forth in Prior Art. Neither reference teaches to diffuse the light within the prism sheet 5 of Prior Art, as claimed.

Therefore, because both cited references reaffirm what is disclosed in Prior Art, and do not disclose the present diffusing arrangement, it is respectfully submitted that it would not have been obvious to modify the prism sheet 5 of Prior Art away from the disclosure of Gloor et al. and Ishikawa et al. without additional references disclosing the presently claimed diffusing surface arrangement. 

Therefore, for at least the above, it is respectfully requested that the rejection to independent claim 1 be withdrawn and independent claim 1 be allowed. In addition, for similar reasons, it is respectfully submitted that claims 2 and 3, depending from independent claim 1, are also in proper condition for allowance.

Independent claim 4 sets forth a surface light source device including a light guide, a reflecting sheet, a primary light source, and a light control element. The light control element includes a prismatic surface with repeated projections with slopes. At least part of the slopes define a light diffusible surface to generate diffused light while light is radiating within the light control element. The diffusion of light illuminates the exit surface of the light control element in a substantially uniform manner.

Independent claim 4 includes at least the similar feature in claim 1 of “at least part of said slopes defining a light diffusible surface to generate diffused light while the light emanating from the light guide plate is radiating within the light control element.” Therefore, for at least similar reasons, it is respectfully requested that the rejection to independent claim 4

be withdrawn and independent claim 4 be allowed. In addition, for at least similar reasons, it is respectfully submitted that claims 5 and 6, depending from independent claim 4, are also in proper condition for allowance.

Independent claim 7 sets forth a surface light source device including a light guide plate, a reflecting sheet, and a light control element. The light control element includes an inner light diffusible surface that generates diffused light while light is radiating within the light control element. The light diffusible surface illuminates the exit surface of the light control element in a substantially uniform manner.

Independent claim 7 includes at least the similar feature in claim 1 of “the diffusible surface generates diffused light while the light emitted from the exiting surface of the light guide plate is radiating within the light control element.” In addition, claim 7 includes the feature of the light control element having an *inner* light diffusible surface. It is respectfully submitted that Prior Art, Gloor et al., and Ishikawa et al. all fail to disclose this feature. Therefore, for at least the above and similar reasons as above in the remarks regarding claim 1, it is respectfully requested that the rejection to independent claim 7 be withdrawn and independent claim 7 be allowed.

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CONCLUSION:

In accordance with the foregoing, it is respectfully submitted that all outstanding objections and rejections have been overcome and/or rendered moot. And further, that all pending claims patentably distinguish over the prior art. Thus, there being no further outstanding objections or rejections, the application is submitted as being in condition for allowance which action is earnestly solicited.

If the Examiner has any remaining informalities to be addressed, it is believed that prosecution can be expedited by the Examiner contacting the undersigned attorney for a telephone interview to discuss resolution of such informalities.

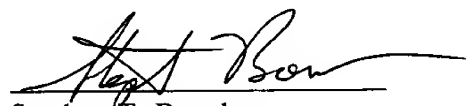
If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,
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2/9/00

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